REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1 and 90-121 are presently pending in this application, Claims 1, 98 and 103 having been amended by the present amendment.

In the outstanding Office Action, Claims 1, 90-96, 100-110, 113-115 and 117-121 were rejected under 35 U.S.C. §103(a) as being unpatentable over Seyama et al. (U.S. Patent 5,586,006) in view of Ainslie et al. (U.S. Patent 4,418,857); and Claim 99 was rejected under 35 U.S.C. §103(a) as being unpatentable over Seyama et al. and Ainslie et al., and further in view of JP 58-030175 (hereinafter "JP '175").

Claims 1, 98 and 103 have been amended herein. These amendments are believed to find support in the specification, claims and drawings as originally filed, and no new matter is believed to be added thereby. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work in a joint effort to derive mutually satisfactory claim language.

Before addressing the obviousness rejection based on the cited references, a brief review of Claim 1 as currently amended is believed to be helpful. Claim 1 is directed to a package substrate and recites, *inter alia*, "a conductive connecting pin configured to establish an electrical connection with another substrate, the conductive connecting pin being *secured to the partially exposed portion of the pad structure via a solder, the solder being disposed over at least one metal layer formed in the partially exposed portion of the pad structure.*" By forming at least one metal layer only within the exposed portion, *i.e.*, not entirely over the upper surface of the pad structure, the solder is effectively prevented from seeping into an interface between the solder resist and the pad structure but remains only within the exposed portion of the pad structure.

The Office Action states that the subject matter recited in Claim 1 is obvious over Seyama et al. and Ainslie et al. because "one skilled in the art ... would [have] readily recognized incorporating at least one metal layer between the pin and pad structure of Seyama, since the at least one metal layer would improve the electrical connection while creating a strong bond between the pin and the pad structure as taught by Ainslie." Nevertheless, Seyama et al. merely shows a conductive pin 34 attached via solder to a pad 32 exposed through a resist, and Ainslie et al. simply shows a pad structure having a metal layer formed over its entire upper surface. Nowhere do Seyama et al. and Ainslie et al. teach or suggest that a metal layer be formed only within the exposed portion, *i.e.*, not entirely over the upper surface of the pad structure. As such, the combined structure proposed based on Seyama et al. and Ainslie et al. is believed to be a product of hindsight guided by Applicants' disclosure, and their teachings even in combination are not believed to teach or suggest "a conductive connecting pin configured to establish an electrical connection with another substrate, the conductive connecting pin being *secured to the partially exposed portion of the pad structure via a solder, the solder being disposed over at least one metal layer formed in the partially exposed portion of the pad structure*" as recited in amended Claim 1. Therefore, it is respectfully requested that the obviousness rejection based on Seyama et al. and Ainslie et al. be withdrawn.

JP '175 is cited simply for "constriction portion 601 having a diameter, which is smaller than the diameter of the outer portion," and is not believed to teach or suggest "a conductive connecting pin configured to establish an electrical connection with another substrate, the conductive connecting pin being secured to the partially exposed portion of the pad structure via a solder, *the solder being disposed over at least one metal layer formed in the partially exposed portion of the pad structure*" as recited in amended Claim 1 (emphasis

added in italic). As such, the structure recited in amended Claim 1 is also distinguishable over JP '175.

In sum, none of Seyama et al., Ainslie et al. and JP '175 discloses the conductive connecting pin structure as recited in amended Claim 1, and their teachings even in combination are not believed to render the structure recited in amended Claim 1 obvious.

Claim 103 has been amended to recite "conductive connecting means for establishing an electrical connection with another substrate, the conductive connecting means being secured to the partially exposed portion of the pad structure via a solder, *the solder being disposed over at least one metal layer formed in the partially exposed portion of the pad structure*" (emphasis added in italics), and is therefore distinguishable over Seyama et al., Ainslie et al. and JP '175.

Based on the foregoing discussions, Claims 1 and 103 are believed to be allowable. Furthermore, Claims 90-102 and 104-121 depend either Claim 1 or 103 and thus substantially the same reasons set forth above for Claims 1 and 103 are also applicable to these dependent claims. Thus, Claims 90-102 and 104-121 are believed to be allowable as well.

In light of the discussions during the telephone communication and in view of the amendments presented above, the present application is believed to be in condition for allowance. Applicants respectfully request an early and favorable action to the effect discussed above.

Respectfully submitted,

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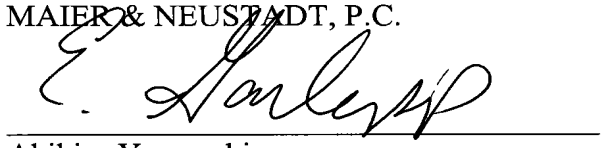

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